

**(19) World Intellectual Property Organization
International Bureau**



(43) International Publication Date
12 September 2003 (12.09.2003)

(10) International Publication Number
WO 03/074537 A1

PCT

- (51) **International Patent Classification⁷:** C07F 9/10, (74) **Agent:** GIDDINGS, Peter, John; GlaxoSmithKline, 980 A61K 9/72 Great West Road, Brentford, Middlesex TW8 9GS (GB).

(21) **International Application Number:** PCT/GB03/00876

(22) **International Filing Date:** 4 March 2003 (04.03.2003)

(25) **Filing Language:** English

(26) **Publication Language:** English

(30) **Priority Data:**
0205327.0 6 March 2002 (06.03.2002) GB

(71) **Applicant (for all designated States except US):** GLAXO GROUP LIMITED [GB/GB]; Glaxo Wellcome House, Berkeley Avenue, Greenford, Middlesex UB6 0NN (GB).

(72) **Inventors; and**

(75) **Inventors/Applicants (for US only):** LOOKER, Brian, Edgar [GB/GB]; GlaxoSmithKline, Gunnels Wood Road, Stevenage, Hertfordshire SG1 2NY (GB). LUNNISS, Christopher, James [GB/GB]; GlaxoSmithKline, Gunnels Wood Road, Stevenage, Hertfordshire SG1 2NY (GB). REDGRAVE, Alison, Judith [GB/GB]; GlaxoSmithKline, Gunnels Wood Road, Stevenage, Hertfordshire SG1 2NY (GB).

(81) **Designated States (national):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) **Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report

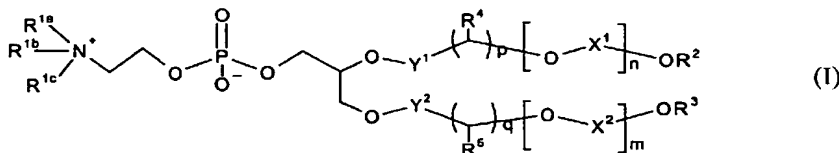
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

- (54) Title:** COMPOUNDS FOR USE AS SURFACTANTS



- (S7) Abstract:** There are provided according to the invention compounds of formula (I) or a salt or solvate thereof wherein: m, n, p and q independently represent an integer 1 to 12; R^{1a}, R^{1b} and R^{1c} independently represent C₁₋₃ alkyl or hydrogen; R² and R³ independently represent C₁₋₄ alkyl optionally substituted with up to 5 fluorine atoms or -COC₁₋₂ alkyl optionally substituted with up to 5 fluorine atoms; R⁴ and R⁵ independently represent -CH₃ or hydrogen. X¹ and X² independently represent -(CH₂)₂-, -(CH₂)₃-, -CH(CH₃)CH₂-, -CH₂CH(CH₃)-, -CH(CH₃)CH₂CH₂-, -CH₂CH(CH₃)CH₂-, CH₂CH₂CH(CH₃) or -COCH(CH₃)-, and Y¹ and Y² independently represent -CH₂- or carbonyl; with the proviso that when: p and q represent 1; m and n independently represent an integer between 1 to 12; R⁴ and R⁵ represent hydrogen; X¹ and X² represent -(CH₂)₂-; and Y¹ and Y² represent -CH₂-; then R² and R³ may only represent C₁₋₂ alkyl optionally substituted with up to 5 fluorine atoms or -COC₁₋₂ alkyl optionally substituted with up to 5 fluorine atoms.

WO 03/074537 A1

INTERNATIONAL SEARCH REPORT

Inter Application No
PCT/GB 03/00876

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C07F9/10 A61K9/72

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C07F A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,Y	WO 03 011874 A (GLAXO GROUP LTD.) 13 February 2003 (2003-02-13) the whole document ---	1-20
Y	WO 96 09816 A (GLAXO WELLCOME INC.) 4 April 1996 (1996-04-04) cited in the application the whole document ---	1-20
Y	WO 90 15807 A (APPLICATIONS ET TRANSFERTS DE TECHNOLOGIES AVANCÉES) 27 December 1990 (1990-12-27) the whole document ---	1-20
Y	EP 0 422 241 A (KABUSHIKI KAISHA YAKULT HONSHA) 17 April 1991 (1991-04-17) the whole document ---	1-20
	--- -/--	



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *G* document member of the same patent family

Date of the actual completion of the international search

4 June 2003

Date of mailing of the international search report

13/06/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Beslier, L

INTERNATIONAL SEARCH REPORT

Intern Application No
PCT/GB 03/00876

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 272 097 A (NOVO INDUSTRI A/S) 22 June 1988 (1988-06-22) the whole document ---	1-20
Y	WO 92 00061 A (FISONS PLC) 9 January 1992 (1992-01-09) cited in the application the whole document -----	1-20

INTERNATIONAL SEARCH REPORT

Intern Application No
PCT/GB 03/00876

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 03011874	A	13-02-2003	WO 03011874 A1	13-02-2003
WO 9609816	A	04-04-1996	AP 742 A	26-04-1999
			AT 187063 T	15-12-1999
			AU 707922 B2	22-07-1999
			AU 3532195 A	19-04-1996
			BG 62839 B1	29-09-2000
			BG 101347 A	30-12-1997
			BR 9509108 A	14-07-1998
			CA 2200986 A1	04-04-1996
			CN 1168630 A , B	24-12-1997
			CZ 9700936 A3	13-08-1997
			DE 69513671 D1	05-01-2000
			DE 69513671 T2	06-04-2000
			DK 783302 T3	29-05-2000
			EE 9700061 A	15-08-1997
			EP 0783302 A1	16-07-1997
			ES 2140706 T3	01-03-2000
			FI 971279 A	26-03-1997
			GR 3032245 T3	27-04-2000
			HU 77377 A2	28-04-1998
			WO 9609816 A1	04-04-1996
			JP 10506887 T	07-07-1998
			MD 970134 A	28-02-1999
			NO 971422 A	23-05-1997
			NZ 292995 A	28-10-1998
			PL 319342 A1	04-08-1997
			RU 2157188 C2	10-10-2000
			SI 783302 T1	29-02-2000
			SK 39397 A3	08-10-1997
			US 5849265 A	15-12-1998
WO 9015807	A	27-12-1990	AT 92931 T	15-08-1993
			AU 639008 B2	15-07-1993
			AU 6037790 A	08-01-1991
			CA 2059288 A1	23-12-1990
			DE 69002767 D1	16-09-1993
			DE 69002767 T2	17-03-1994
			DK 478686 T3	29-11-1993
			WO 9015807 A1	27-12-1990
			EP 0478686 A1	08-04-1992
			ES 2060184 T3	16-11-1994
			JP 2849471 B2	20-01-1999
			JP 5501861 T	08-04-1993
			US 5344930 A	06-09-1994
EP 422241	A	17-04-1991	JP 2273536 A	08-11-1990
			DE 69025371 D1	28-03-1996
			DE 69025371 T2	14-08-1996
			EP 0422241 A1	17-04-1991
			AT 134164 T	15-02-1996
			CA 2028859 A1	14-10-1990
			WO 9011823 A1	18-10-1990
			US 5152928 A	06-10-1992
EP 272097	A	22-06-1988	AT 79039 T	15-08-1992
			AU 606121 B2	31-01-1991
			AU 1085888 A	15-07-1988

INTERNATIONAL SEARCH REPORT

 Intern Application No
 PCT/GB 03/00876

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 272097	A	CA 1326210 A1	18-01-1994
		CN 87108340 A ,B	13-07-1988
		CS 8709304 A1	12-07-1990
		DE 3780925 D1	10-09-1992
		DE 3780925 T2	24-12-1992
		DK 455688 A	15-08-1988
		WO 8804556 A1	30-06-1988
		EP 0272097 A2	22-06-1988
		ES 2044957 T3	16-01-1994
		FI 883783 A ,B,	15-08-1988
		GR 3005381 T3	24-05-1993
		HR 930276 A1	30-04-1996
		HU 57592 A2	30-12-1991
		HU 209247 B	28-04-1994
		IE 61110 B1	05-10-1994
		IL 84835 A	25-01-1994
		JP 7068149 B	26-07-1995
		JP 1501550 T	01-06-1989
		MX 9203640 A1	01-09-1992
		NO 883627 A ,B,	15-08-1988
		NZ 222907 A	28-08-1990
		PT 86370 A ,B	01-01-1988
		SI 8712284 A ,B	31-12-1996
		SU 1837869 A3	30-08-1993
		US 5179079 A	12-01-1993
		YU 228487 A1	31-12-1988
		DD 265800 A5	15-03-1989
		ZA 8709284 A	16-06-1988
WO 9200061	A	09-01-1992	AT 147973 T
			AU 8055691 A
			BR 9106595 A
			CA 2085884 A1
			CZ 9203925 A3
			DE 69124374 D1
			DE 69124374 T2
			DK 536235 T3
			EP 0536235 A1
			ES 2096653 T3
			FI 925852 A
			WO 9200061 A1
			GR 3023065 T3
			HU 63554 A2
			IE 912220 A1
			IL 98666 A
			JP 2854974 B2
			JP 5507712 T
			MX 9100008 A1
			NO 924954 A
			NZ 238746 A
			PT 98133 A
			SK 392592 A3
			US 5846521 A
			ZA 9104897 A